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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,419	10/29/2001	Dong Bo Yang	DE 1311	1161

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EXAMINER

WATKINS III, WILLIAM P

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 10/27/2003

#7

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/018,419

Applicant(s)

YANG, DONG BO

Examiner

William P. Watkins III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. The examiner notes that there are minor typographical errors in the amendment such as "agamid" in the last line of the amendment to page 7 of the specification and "dairy" in claim 18 of the amendment. Applicant is asked to carefully check the amendment for other errors.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 9, 14, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalnin (U.S. 3,691,000) in view of Dubowik et al. (U.S. 5,280,091) further in view of Yamato et al. (U.S. 4,451,637).

Kalnin teaches an epoxy matrix material with layers of glass fiber roving and other types of fibers that can be made by using liquid resin in a mold with glass mats that is cured (col.

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2, lines 40-65, col. 3, line 40 through col. 4, line 55, col. 7, lines 25-40). The roving material may be woven material, which the examiner takes as being a type of mesh (col. 5, lines 20-30, col. 7, lines 1-5). Dubowik et al. teaches the use of different epoxy cross linking systems that allow control of the cure time and temperature depending on the equipment and other needs of the formulator, along with the use of glass fiber and other fillers (col. 6, lines 60-69, col. 8, lines 5-25, and Examples 4 and 5. Yamato et al. teaches the use of various inorganic fire retardant fillers in epoxy resin systems (col. 3, lines 15-25). The instant invention claims an epoxy matrix laminate with glass fiber rovings and glass or other fibers where the liquid epoxy resin is molded with the rovings and cured at relatively low temperatures and long periods of time. It would have been obvious to one of ordinary skill in the art to have selected an epoxy curing system with suitable curing and temperature conditions for the field production of the composites of Kalnin because of the teachings of Dubowik et al. It further would have been obvious to one of ordinary skill in the art to have used glass or other fiber filler and inorganic filler to further strengthen the matrix and increase its fire resistance because of the teachings of Dubowik et al. and Yamato et al. (U.S.

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4,451,637). It is not clear what extra structure the preamble language of a vehicle block structure implies, that is not present in the body of claim 19. Use of adhesive to join a structure to a substrate is a well known method of joining objects.

4. Claims 1-6, 10-13, 15-18, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalnin (U.S. 3,691,000) in view of Dubowik et al. (U.S. 5,280,091) further in view of Yamato et al. (U.S. 4,451,637) as applied to claims 9, 14, 19 and 20 above, and further in view of Sweeney (U.S. 5,268,226) and Tepic (U.S. 5,093,050).

In addition to the above noted teachings, Kalnin teaches impregnating roving layers with resin then laying them up in a mold, forming and curing them (col. 7, lines 25-45). Sweeney teaches the formation of a matrix impregnated roving layer by putting the layer in a mold and coating the roving with matrix material and impregnating the matrix into the roving layer by vibration (claim 12). Tepic (col. 1, lines 15-30) teaches that multiple roving and epoxy resin layers can be laid and coated with resin in sequence as opposed to a single lay up step of previously impregnated roving layers as taught in Kalnin. The

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instant invention claims forming a multiple layer roving structure impregnated with a resin matrix by laying up each layer in a mold, coating resin on the layer and consolidation with vibration. It would have been obvious to lay up in a mold and coat each layer of Kalnin as modified above and then consolidate with vibration in order better join the layers because of the teachings of Sweeney and Tepic.

5. Applicant's arguments filed 01 August 2003 have been fully considered but they are not persuasive.

Applicant argues regarding claims 9, 14 and 19 that there is no teaching of a multiple mesh layers in a matrix material comprising fibers. Kalnin teaches multiple roving or mesh layers as noted in the rejection. The Dubowik et al. and Yamato et al. references provide motivation to use a fiber additive in the matrix and roving material of Kalnin to further strengthen and increase the fire resistance of the epoxy laminate.

Regarding the vibration and multiple lay up steps of the method claims, new references have been applied in the above rejections that render applicant's arguments moot.

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6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schupack teaches short fibers and woven fiber layers in a matrix material.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Watkins III whose telephone number is 703-308-2420. The examiner works an increased flex time schedule, but can normally be reached Monday through Friday, 11:30 A.M. through 8:00 P.M. Eastern Time. The examiner returns all calls within one business day unless an extended absence is noted on his voice mail greeting.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 703-308-4251. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

WW/ww

October 15, 2003